agencies and the F.C.C. and have published academic articles on telecommunications issues.

3. I, Hal S. Sider, am a Senior Economist and Principal of Lexecon Inc. I received a B.A. in Economics from the University of Illinois in 1976 and a Ph.D. in Economics from the University of Wisconsin (Madison) in 1980. I have been with Lexecon since 1985, having previously worked in several government positions. I specialize in applied microeconomic analysis and have performed a wide variety of economic and econometric studies relating to industrial organization, antitrust and merger analysis. I have published a number of articles in professional economics journals on a variety of economic topics and have testified as an economic expert on matters relating to industrial organization, antitrust, labor economics and damages. In addition, I have directed several studies of competition in telecommunications industries and have testified as an expert on telecommunications matters. I have also published an academic article (with Kenneth Arrow and Dennis Carlton) on telecommunications issues.

4. On January 25, 1988, we submitted a Declaration to the Federal Communications Commission that evaluated competitive conditions in the provision of local exchange service, long distance service and Internet services and assessed the likelihood that the proposed merger between WorldCom and MCI will adversely affect competition in the provision of these services.[1] We have also filed responses to GTE's comments to the New York State Public Service Commission and the Florida Public Service Commission regarding the competitive impact of the proposed transaction.

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1. Dennis W. Carlton and Hal S. Sider, Declaration, in the Matter of Applications of WorldCom, Inc. for Transfers of Control of MCI Communications Corporation before the Federal Communications Commission, CC Docket NO. 97-211, January 25, 1998 (hereafter, Carlton/Sider).

5. We have been asked by counsel for WorldCom and MCI to evaluate and to respond to the Long Distance Affidavit of Robert G. Harris and the Internet Affidavit of Robert G. Harris, both filed on behalf of GTE on March 13, 1998 as well as the Affidavit of Richard Schmalensee and William Taylor on behalf of GTE, also filed on March 13, 1998.[2] This testimony highlights a few of the more significant problems in the analysis presented by Prof. Harris, Prof. Schmalensee and Dr. Taylor. While it is not possible to evaluate all of the claims made in these affidavits in the limited time available to prepare a response, our analysis indicates that GTE's economists have misinterpreted several key aspects of the telecommunications industry that bear on the potential impact of the proposed transaction on competition.

6. We focus below on the following issues raised by GTE's experts: (i) claims that there are high entry barriers in provision of telecommunications services; (ii) claims that new entrants are not competitively significant and will not constrain wholesale prices following the transaction; (iii) claims that the proposed transaction will significantly limit the competitive alternatives available to wholesale customers; (iv) the economic significance of market share and market concentration measures presented by GTE's economists; (v) claims that MCI WorldCom will have significantly reduced incentives to serve wholesale customers; (vi) claims that the stock market performance of telecommunication companies in recent months indicates that the proposed transaction is anticompetitive; (vii) claims that WorldCom has exaggerated estimates of cost savings resulting from the proposed transaction; and (viii) claims that the proposed transaction will have significant anticompetitive consequences with respect to the provision of Internet backbone services. We also briefly address two instances in which GTE's economists have significantly misquoted and/or mischaracterized our prior testimony.[3]

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2. Hereafter, these are affidavits are respectively referred to as Harris LD; Harris Internet; and Schmalensee/Taylor.

3. Claims relating to the trends in interexchange pricing are addressed in the Declaration of (continued...)

7. In our prior statement to the Federal Communications Commission, we concluded: (i) that the proposed transaction creates potentially large benefits to consumers in the United States and elsewhere; and (ii) that it is highly unlikely that the proposed transaction will adversely affect competition in light of the rapid entry, expansion and technological changes now taking place in the telecommunications industry. The statements by GTE's economists do not lead us to alter those conclusions. To the contrary, much of the evidence cited by GTE's experts, properly interpreted, supports our conclusion that the proposed transaction will yield significant benefits to consumers and will not adversely affect competition.

8. As discussed in more detail below, we find:

- GTE's economists misdefine entry barriers and incorrectly claim that the massive entry of new network operators and expansion of capacity now taking place is insufficient to deter anticompetitive effects of the proposed transaction and to protect consumers.
- Capacity is being deployed by entrants in areas that contain the vast majority of the nation's population. Entry into these areas has important effects on competition elsewhere due to Congressionally mandated uniformity in retail long distance rates, the negligible impact of local conditions on much wholesale pricing, and increased opportunities for potential entry resulting from deployment of new networks.
- The proposed transaction does not significantly reduce competitive alternatives for wholesale and retail customers. The vast majority of the nation's population lives in areas now served by seven or more network providers. The market share and concentration statistics cited by GTE's economists are likely to be

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(...continued)
Robert Hall, filed with the FCC on behalf of WorldCom and MCI on January 25 and are not addressed in detail below.

unreliable indicators of competitive conditions by failing to account for the massive new entry and expansion now occurring, and by failing to account for the high capacity of new networks, and the fact that multiple independent firms operate capacity, especially that of new networks.

- The proposed transaction also does not significantly affect MCI WorldCom's incentive to serve wholesale customers. This is because the risk that wholesale capacity sold to resellers will be used to win existing MCI WorldCom retail customers appears to be limited, as reflected in the fact that resellers' gains have disproportionately come at the expense of AT&T. In addition, the availability of alternative wholesale suppliers, including new entrants, reduces the incentive of vertically integrated firms to limit capacity.
- The Internet is characterized by a standard, non-proprietary interconnection protocol; the absence of significant barriers to entry into the provision of Internet services; and, consumer demand for ubiquitous network access. These industry characteristics would frustrate attempts by any Internet backbone firm to exercise market power. Given the absence of entry barriers, attempts by MCI WorldCom to raise price or to otherwise disadvantage rivals would induce customers or rivals to reconfigure their networks.

II. THE ABSENCE OF BARRIERS TO ENTRY AND EXPANSION PREVENT THE EXERCISE OF MARKET POWER

A. PROF. HARRIS INCORRECTLY DEFINES ENTRY BARRIERS

9. We concluded in our earlier Declaration that the massive entry now occurring in the provision of long distance services makes it highly unlikely that the proposed transaction will

adversely affect competition at either the wholesale or retail level.[4] Prof. Harris disagrees, claiming: "[t]he supply of facilities based interexchange services is characterized by substantial barriers to entry. By this I mean that entry is neither quick nor riskless."[5]

10. Prof. Harris' statement, and his resulting conclusion, reflect a basic misunderstanding of the economic concept of entry barriers. His definition differs fundamentally from that employed in economic analysis and is unsupported by economic literature. Barriers to entry are generally defined as costs that must be incurred by an entrant that incumbent firms do not (or did not have to) bear. This widely-accepted definition, generally credited to George Stigler, means that barriers to entry do not necessarily exist just because entry entails risks or costs.[6]

11. The fact that entry into an industry is "neither quick nor riskless" does not imply that entrants face inherent cost disadvantages, nor does it follow that the industry is likely to suffer from supracompetitive prices. If Prof. Harris' definition had any economic content, then it would be expected that any industry in which entry entailed some risk or was not instantaneous would earn profits above the competitive level over the long term. There is no evidence to support this general proposition. By Prof. Harris' standard, virtually all industries would be characterized by "substantial barriers to entry." This definition provides no guidance for economic analysis.

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4. Carlton/Sider, pp. 15-20.

5. Harris LD affidavit, p. 17.

6. See the discussion of entry barriers in Carlton's textbook (with J. Perloff), Modern Industrial Organization, p. 110. Stigler discusses this general definition in his book The Organization of Industry (1968).

B. MARKET EVIDENCE SUGGESTS THAT ENTRY BARRIERS ARE NOT SIGNIFICANT

12. Entrants into the provision of telecommunication services do not appear to face significant entry barriers. The provision of service generally involves technologies that, while complex, are commercially available and well-understood. Fiber optic cable, transmission and switching technologies are widely available from third-party suppliers. Entry also requires expertise in assembling and operating network components, and the development of marketing and customer service capabilities, none of which have prevented the large scale entry that is ongoing.

13. This does not imply that entry is simple or inexpensive, nor does it imply that entry can be accomplished without highly skilled technical and management resources. However, it does imply that entrants are not necessarily at a disadvantage relative to incumbents in assembling the inputs necessary to compete in the marketplace. While large-scale entry may be expensive, financing has been available to a wide variety of entrants in recent years. Moreover, entry on a large scale generally is not necessary. For example, firms can enter into the provision of long distance service as resellers, performing the marketing, billing and customer service functions while leasing at wholesale rates either complete services or switching and transmission capacity . Similarly, firms can, for example, enter into the provision of switching services on a limited basis and also can deploy fiber optic cable on a regional basis.

14. The massive entry now occurring into the provision of various telecommunication networks and services is documented in our prior declaration. Examples of current entry include the construction of nationwide, high capacity fiber optic networks by Qwest, IXC, Williams Co., and Level 3 as well as more limited entry by others. Significant segments of the Qwest and IXC networks are now operational and these networks are scheduled to be fully

operational by 1999. Williams expects to have 20,000 route miles of its planned 32,000 mile system operational in 1999. In addition, significant portions of the Qwest and IXC networks have been sold to major telecommunications firms such as GTE and Frontier that will independently operate and market the capacity they own. Thus, the count of new networks understates the increase in the number of new firms participating in the market.

15. Developments in the few weeks since our FCC declaration provide additional examples of entry and expansion. AT&T, for example, recently announced that it will use new technology from Lucent to double the capacity of its network by the end of 1998[7] and to increase its capacity "by a factor of 10 over the next few years."[8] Williams Co., which previously announced an expansion of its network to 18,000 route miles by the beginning of 1999, announced an investment of $2.7 billion for construction of a 32,000 route-mile system to be completed by year-end 2001, with about 20,000 route miles in service by the first quarter of 1999.[9] And, Sprint has recently announced deployment of new technology from CIENA Corporation that will "immediately increase its current network capacity by 250 percent, and eventually by 600 percent ..."[10]

16. Prof. Harris' suggestion that these entrants are unlikely to materialize because identification of these entrants "relies on mere company announcements, on new 'potential entrants,' and on fiber deployment alone" is simply incorrect.[11] The major entrants are all highly credible, well-financed, publicly traded and are managed by individuals with significant industry experience. Most of these entrants have already deployed significant amount of fiber

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7. Wall St. Journal, January 27, 1998, p. B6.

8. New York Times, January 27, 1998, Section D, p. 1.

9. PR Newswire, Williams press release, February 11, 1998.

10. Sprint press release, March 16, 1998, <http://www.sprint.com/sprint/press/releases/9803/9803160539.html>

11. Harris LD affidavit, p. 21.

optic cable and have "lit" portions of their networks. These new networks also typically contain more fiber capacity and more sophisticated electronics than the competing networks now in place. Thus, current marketplace evidence contradicts Prof. Harris' suggestion that significant entry barriers into the provision of long distance service will prevent the current industry structure from changing. Indeed, it is his failure to appreciate the impact of the massive current entry on future industry structure that leads him to conclude that the proposed transaction will harm competition.

III. THERE IS NO BASIS FOR CLAIMS THAT NEW ENTRANTS ARE NOT SIGNIFICANT COMPETITORS

17. GTE's economists claim that the new entrants such as Qwest, IXC, Williams, Level 3 and others "will therefore not be sufficient to check the anticompetitive effects of MCI-WorldCom merger."[12] Prof. Harris, for example, claims that the entrants "only aim to connect the major interstate corridors" and "will still remain reliant on capacity" provided by other networks.[13]

18. There are several significant problems with this view. First, the characterization of these networks as being limited in scope is incorrect. Second, networks can influence competition even in areas in which they do not have facilities. Third, the entrants plan to focus on the wholesale market, which GTE's experts claim has a special role in constraining pricing by the major networks.

A. THE NEW NETWORKS HAVE BROAD POPULATION COVERAGE

19. Prof. Harris presents measures of network coverage that reflect the percentage

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12. Harris LD Affidavit, p. 22; see also Schmalensee/Taylor affidavit, p. 27.

13. Harris LD Affidavit, p. 21-22.

of the United States population in LATAs in which a network has a point of presence, or POP. However, his calculations are based only on POPs that are operational today. This approach fails to present an accurate view of the competitive significance of these networks, which will be fully deployed by next year.[14]

20. We have obtained the location of network points of presence that Qwest, IXC, Williams and others are now scheduled to deploy throughout the United States and, following Prof. Harris' format, have identified the population in the LATAs served by these POPs. Data on the locations of POPs of major interexchange carriers has been obtained from the QTel 9000 Master Rate Center File used by Prof. Harris.

21. These data are presented in Table 1, and indicate that the population coverage of the new networks will be extensive, reaching nearly as large a share of the population as WorldCom today. For example, Qwest is scheduled to deploy POPs in LATAs that cover 78 percent of the nation's population. Williams provides or plans to provide coverage in LATAs covering 72 percent of the population; IXC provides or plans to provide coverage in LATAs covering 61 percent of the population.

22. WorldCom today has POPs in LATAs that include 82 percent of the population.[15] While Prof. Harris stresses that the entrants will be unable to be significant competitors due to their "sparse" coverage, he also argues that WorldCom -- with a roughly similar level of coverage -- has played a highly significant role in promoting competition in the industry. The less-than-full LATA coverage of entrants will not prevent them -- like it did not prevent World-Com -- from being significant competitors that will insure that wholesale rates in the provision of long distance service are not adversely affected by this transaction.

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14. As discussed below, there is no support for suggestions by GTE's experts that deployment of the Qwest and IXC networks have been or are likely to be significantly delayed.

15. Prof. Harris (p. 13) emphasizes that WorldCom still does not have facilities in roughly 90 LATAs.

Table 1

Coverage of Interexchange Carriers

Interexchange Carrier	Points of Presence	Percentage of LATAs Served	Population Covered
AT&T	715	100.0%	100.0%
MCI	582	96.4%	99.5%
Sprint	399	95.4%	99.1%
WorldCom	162	53.8%	82.8%
Other	499	63.1%	86.2%
Qwest	125	50.3%	78.4%
Frontier	92	42.6%	71.7%
Williams	68	32.8%	69.3%
IXC	106	30.3%	61.4%
Cable & Wireless	35	15.9%	48.6%
LCI	61	12.8%	30.3%

Source: CCMI Qtel 9000 Master Rate Center File; OnTarget Mapping/Claritas; Qwest; IXC; Williams; LCI; Frontier.

Note: Includes POPs Scheduled to be deployed by 1999.

B. ENTRANTS INFLUENCE PRICE, EVEN OUTSIDE THE AREAS IN WHICH THEY OPERATE

1. Entrants' population coverage constrains basic long distance rates

23. Long distance providers can affect competition even if they do not operate facilities in a given area. One factor contributing to this are FCC rules that require that interexchange carriers charge uniform retail prices for most services throughout the areas where they operate. While rates may vary, for example, by the distance of a call, consumers throughout an interexchange provider's service area generally face the same pricing schedule.

24. In setting uniform retail prices for basic long distance services (for example, 1+ dialing services), interexchange carriers need to pay close attention to their rivals in major population areas. Because the new entrants' networks cover a large portion of the population, they will be a significant factor constraining wholesale rates. This, in turn, constrains retail rates nationwide. Due to uniformity in retail rates, the procompetitive effect of the entry of new networks in high populations areas benefits retail consumers both in areas served by the entrants as well in other locations.

25. As a caveat, we note that the FCC rules do not apply to interLATA calls that originate and terminate within a state. These calls, however, account for a relatively modest share of interLATA calls.[16] Moreover, the significance of local competitive conditions to intrastate long distance calls is diminished in discount calling plans offered by major inter-exchange carriers. For example, pricing in AT&T's One Rate Plus Plan and Sprint's Sprint Sense AnyTime plans do not differentiate between interstate and intrastate calls. As this suggests, marketing considerations also create pressure for pricing uniformity across geo-graphic areas. This uniformity allows wide-scale advertising of relatively simple pricing

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16. Harris LD Exhibit 29 indicates that roughly 75 percent of billed interLATA access minutes are interstate.

schedules.

26. The existence of pricing uniformity rules and practices for basic long distance services undermines Prof. Harris' attempt to make an analogy between the pricing of inter-exchange services and the pricing of rail and air transportation services. In these industries, competitive conditions on the route (or at the origin or destination) directly influence pricing because prices typically are uniquely determined on a route-specific basis. Comparable circumstances do not arise in the pricing of basic interexchange services.[17]

2. Entrants' population coverage constrains wholesale rates

27. The high population coverage of entrants also would be expected to influence the pricing of wholesale services despite the less than universal coverage of their networks. First, competitive constraints on retail rates affect the price that wholesale suppliers can charge. When retail rates are held to the competitive level, perhaps due to entry by vertically integrated suppliers, wholesale rates also will be constrained. Second, although not mandated by regulation, wholesale rates charged by network suppliers for the provision of switched wholesale interexchange services (purchased by switchless resellers) are uniformly applied. For example, for a given customer, WorldCom's switched interstate interLATA wholesale service is priced on a per minute basis, regardless of the state of origin and destination and without reference to the distance of the call.[18]

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17. The pricing uniformity extends the scope of the geographic market for many long distance services and ensures that the geographic market is broader than just a route between a particular origin and destination, and is broader than just an origin or a destination.

18. On WorldCom's "Transcend" product, rates are distinguished for calls originating and terminating in areas in which WorldCom uses its own facilities and areas in which it does not. Distinctions are also drawn between interstate and intrastate interLATA calls, to account for access cost differences on such calls. These pricing distinctions are not made for WorldCom's "Classic" switched wholesale product, all minutes carry the same

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28. As a result, the high population coverage of the POPs scheduled to be deployed by the entering networks can be a significant constraint on pricing decisions by other networks offering wholesale service. To the extent that these networks can readily provide wholesale service to a large population base, resellers can turn to a variety of new wholesale suppliers as entrants complete deployment of their networks.

3. Entrants' networks create credible potential entry in areas where POPs are not scheduled to be deployed

29. The new networks can also influence pricing by creating more credible potential entrants in areas not initially served by the network. New spurs or rings can be readily deployed from fiber optic networks into previously unserved areas. To the extent that prices for certain long distance services are influenced by local conditions, pricing by incumbent network operators is constrained by the ability of others to extend their networks into an area. The non-incumbent firms continuously evaluate the choice of leasing facilities from the incumbent or building new facilities. To the extent that deployment of a new network creates credible opportunities for future network expansion into unserved areas, prices charged by incumbent network operators are likely to be constrained.

C. THE ENTRANTS' FOCUS ON SERVING WHOLESALE CUSTOMERS

30. GTE's economists emphasize that WorldCom is a "maverick" whose competitive significance is greater than that implied by its market share. In their view, WorldCom's maverick status is attributable to its focus on serving wholesale customers. If a network's focus on serving wholesale customers has particular competitive significance (above that exercised by vertically integrated suppliers), then the entrants also should be expected to have a

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(...continued)
per minute rate. Wholesale price schedules also contain volume and term discounts.

disproportionately strong impact on competition as each plans to concentrate on providing wholesale services.

- IXC: IXC's Annual Report stresses its role as a wholesale supplier "that provides network capacity to national and regional long-distance carriers and resellers ... " Communications Week International, October 20, 1997 writes: "IXC is a carrier's carrier."
- Qwest: Qwest describes itself as a provider of "long-haul fiber capacity to Internet service providers, interexchange companies, local exchange companies and long distance resellers."[19] The Qwest Prospectus emphasizes that "potential customers will view the Company, with its construction capabilities and its emphasis on being a 'carrier's carrier,' as an attractive source for certain of their long distance transmission needs."[20]
- Williams: A Williams Co. press release announcing a major expansion in its network emphasizes its goal of providing service to other carriers: "Williams expects to play a role as a 'carrier's carrier' in igniting a new era of competition ..."[21]
- Frontier: Frontier's annual report also emphasizes the company's goals in providing wholesale service: "Another major emphasis for Frontier is the carrier services segment."[22]

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19. Qwest - Who We Are, <http://www.qwest.net/whoweare.html>, March 13, 1998.
20. Qwest Prospectus, June 24, 1997, p. 44.
21. <http://www.twc.com/news/rel138.html>, January 5, 1998.
22. Frontier 1997 Annual Report, p. 4.

D. ENTRANTS MEET THE MERGER GUIDELINES' CRITERIA FOR DETERRING ANTICOMPETITIVE CONSEQUENCES OF THE TRANSACTION

31. The Department of Justice and Federal Trade Commission Merger Guidelines outline conditions in which entry is likely to deter or counteract potential competitive concerns arising from transaction. The conditions relate to the timeliness, likelihood and sufficiency of committed entry. Under the Merger Guidelines, entry is generally considered timely if it can have a significant market impact within a roughly two year period; entry is considered likely if it is expected to be profitable at pre-merger prices; and entry is considered sufficient if it is of sufficient scale to deter anticompetitive effects.

32. The entry now underway, as described above and in our January 25, 1998 declaration, appears to meet these criteria.

- With respect to timeliness, the new entrants to the provision of network service, including Qwest, IXC and Williams, already offer services over at least a portion of the networks and expect to complete their networks well within the two-year window typically considered under the Merger Guidelines. While the GTE economists suggest that entry of Qwest and others has been or is likely to be significantly delayed, they cite no evidence to support this claim.[23] To the contrary, available evidence suggests that network deployment, including "lighting" deployed fiber, is on schedule.[24]
- The entry described above must be considered "likely," as defined in the Merger

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23. See Schmalensee/Taylor, p. 29; Harris LD, p. 21.

24. Recent statements by Qwest contradict the GTE economists' claims. In announcing activation of a new network segment on March 4, 1998, Qwest reported that it "continues on schedule the delivery and deployment of its Macro Capacity fiber network." <http://www.qwest.com.press/030498.html> Qwest plans to have service operational in all of its 125 POPs by early 1999. <http://www.qwest.com/ networkupdate.html> (March 18, 1998).

Guidelines. The entrants already have made large investments in deploying facilities. The likelihood of profitability at pre-merger prices is supported by the availability of financing for these projects.

- The entry described above also is "sufficient" as defined in the Merger Guidelines. As a group, Qwest, IXC, Williams and Level 3 alone are planning to deploy roughly 75,000 fiber route miles of high capacity fiber and electronics by 1999, nearly double AT&T's current route mileage (and probably significantly more than double AT&T's fiber miles, due to the large number of fiber strands per cable being deployed by new networks and new, advanced electronics).

33. The magnitude of the new entry is put in proper perspective in a recent GTE advertisement describing its new data network, which is being deployed using 24 fiber strands acquired from Qwest. GTE's Qwest capacity reflects one-fourth of the fibers in this network, which in turn is only one of four significant new entrants. Yet, according to GTE, this new data network alone has more than 100 times the capacity of the entire Internet today.[25]

E. WORLDCOM'S HISTORY SHOWS THAT SMALLER NETWORKS CAN BE SIGNIFICANT COMPETITORS

34. GTE's economists argue that WorldCom is a maverick while at the same time attempting to argue that today's entrants will not be significant competitors. These claims are inconsistent. There is little question that despite the more limited scope of WorldCom's network relative to AT&T, Sprint and MCI, WorldCom is a significant competitor in the industry. However, there is no reason to think that the large and sophisticated entrants now investing billions of dollars in deploying new networks will not also be effective competitors. At least some of these networks will soon have a presence at least as significant as WorldCom's just a

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25. GTE advertisement in Wall St. Journal, January 21, 1998, pp. A8-A9.

short time ago. Prof. Harris reports (Exhibit 15) that WorldCom had only about 110 POPs as recently as 1996. In contrast, by next year, IXC is expected to have deployed 106 POPs, and Qwest is expected to have deployed 125. Given that the industry of reselling long distance service is now better established than in the past, there is every reason to expect that the entrants will rapidly be able to act as significant competitors whose presence will insure that this transaction will not result in higher prices.

35. Finally, regardless of the geographic scope of the entrants, their operators must arrange off net facilities in order to offer a robust service to customers. This drives entrants to continuously reevaluate when calling patterns may warrant network extension.

IV. THE PROPOSED TRANSACTION DOES NOT SIGNIFICANTLY REDUCE COMPETITIVE ALTERNATIVES FOR WHOLESALE AND RETAIL CUSTOMERS

A. MOST PEOPLE LIVE IN AREAS SERVED BY MANY NETWORKS

36. The discussion above shows that even network providers that do not provide service in all areas can significantly affect competition. Because pricing for many services including basic long distance services does not vary by area, the competitive conditions in areas in which most customers live will have an important impact on pricing throughout the United States.

37. Thus, it is useful to examine the number of network suppliers that offer services in more densely-populated areas of the United States. We have used data available from the CCMI Qtel 9000 Master Rate Center File combined with information obtained from network suppliers not tracked in this data base to identify which firms operate or plan to deploy facilities in each LATA. Our analysis tracks the location of POPs of 10 networks: AT&T, Sprint, MCI,

WorldCom, Cable and Wireless, Qwest, IXC, Williams, LCI, and Frontier.[26]

38. The analysis, summarized in Table 2 and more fully documented in Appendix 2.1 shows that each of these 10 networks operate in each of the 10 most populous LATAs, which alone account for 24 percent of the nation's population.[27] Fully 60 percent of the U.S. population lives in LATAs served by eight or more of these carriers and 75 percent of the nation's population lives in areas now served by six or more of these carriers. These data indicate that the vast majority of the nation's population lives in areas that are now or will soon be served by a substantial number of long distance networks. Given the mandate that each carrier offer a nationwide average rate, competitive conditions in these areas are likely to significantly influence pricing nationwide.

39. To the extent that local conditions are relevant for analyzing long distance pricing, it is significant to note that relatively few people live in areas for which the transaction would reduce the number network operators to three, four or even five. As shown in Table 3, only 6 percent of the U.S. population live in areas in which the transaction would reduce the number of networks from four to three; 5 percent of the population live in areas in which the number of networks would fall from five to four, and 4 percent live in areas in which a reduction from six to five would result. Appendix 2.2 reports the networks with POPs either in place or scheduled in each LATA. Appendix 2.3 reports comparable information on a state-specific basis.

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26. This calculation thus fails to capture a number of regional network providers including, for example, Interstate FiberNet, Norlight, KinNet, Minnesota Equal Access Network, and others. We treat LCI and Qwest as separate firms although these firms have announced their intention to merge.

27. These LATAs include Los Angeles, New York, Chicago, Northern New Jersey, Detroit, Atlanta, Washington, D.C., Pittsburgh, Indianapolis and Cleveland.

Table 2

Percent of Population in LATAs Served By Various Numbers of Carriers

Total Carriers with POPs	Percent of US Population	Cumulative Percent of US Population
10	23.5%	23.5%
9	23.0%	23.5%
8	11.8%	58.3%
7	9.5%	67.8%
6	5.9%	73.7%
5	7.2%	80.9%
4	10.8%	91.7%
3	7.4%	99.1%
2	0.6%	99.7%
1	0.3%	100.0%

Source: CCMI Qtel 9000 Master Rate Center File; OnTarget Mapping/Claritas; Qwest; IXC; Williams; LCI; Frontier.

Note: Includes POPs scheduled to be deployed by 1999.

Table 3

LATA-Specific Effects of MCI/WorldCom Merger

Change in Number of Carriers Serving LATAs and Percent of Population Affected

Change in No. of Carriers Serving LATA	Percentage of U.S. Population
10 to 9	23.5%
9 to 8	23.0%
8 to 7	11.8%
7 to 6	8.7%
6 to 5	4.8%
5 to 4	4.2%
4 to 3	6.6%
No Change	17.4%

Source: CCMI Qtel 9000 Master Rate Center File; OnTarget Mapping/Claritas; Qwest; IXC; Williams; LCI; Frontier.

Note: Includes POPs Scheduled to be deployed by 1999.

B. MARKET SHARE AND CONCENTRATION STATISTICS CITED BY GTE'S ECONOMISTS ARE LIKELY TO BE UNRELIABLE INDICATORS OF COMPETITIVE CONDITIONS

40. GTE's economists present alternative measures of market shares and market concentration in support of their view that the transaction will significantly raise the concentration of network services and, by inference, price. This section shows that the concentration measures used by GTE's economists each have significant shortcomings and are of limited usefulness in evaluating the competitive effect of the proposed transaction. GTE's economists focus on market shares defined on the basis of points of presence (POPs) and fiber route miles. Each of these measures is addressed in turn.

1. Shares based on POPs

41. GTE's economists attempt to measure HHI based on the number of POPs operated by various long distance carriers and use these measures to suggest that the proposed transaction will significantly raise concentration and, by inference, prices charged for wholesale and retail long distance services. (See Harris LD Exhibit 13 and Schmalensee-/Taylor Exhibit 5.) This measure of market concentration is not economically meaningful for a variety of reasons. First, these measures exclude POPs that are scheduled to be deployed in the near future, incorrectly ignoring their competitive significance and the Merger Guidelines' direction to be forward looking. Second, these calculations incorrectly equate the competitive significance of POPs in densely and sparsely populated LATAs. For the reasons discussed above, POPs in more populous LATAs are likely to have a more significant effect on pricing than facilities in less populous LATAs. For similar reasons, estimates of market shares based on fiber route miles alone also fail to capture the competitive significance of a networks' proximity to large population areas.

42. Furthermore, simple market share statistics based on POP shares can be

misleading because a single network POP in a given LATA is likely to be of greater competitive significance than, for example, a firm's second and third POPs in an area. This is because the costs of expanding capacity for a firm already operating in an area are likely to be lower than the cost of first establishing a presence by a new operator.

2. Shares based on fiber route miles

43. The interpretation of market share calculations based on fiber route miles of the type presented by GTE's economists is also greatly complicated by the fact that several suppliers often independently control capacity on a network as the result of dark fiber sales. For example, Qwest has sold significant blocks of capacity to Frontier and GTE as well as capacity on certain segments to WorldCom. For example, Frontier and GTE, using their capacity purchased from Qwest, both compete with the remaining capacity still owned by Qwest, yet GTE's economists market share calculations typically do not account for the multiple owners. Prof. Harris argues that carriers that own capacity on the same network "are not fully equivalent to four independent suppliers, because all of this competition will be focussed on the same very specific and very limited geographic areas, and there is little route diversity between them."[28] Nonetheless, Prof. Harris does not dispute the basic principle that failure to make an appropriate adjustment for multiple independent owners of network capacity will result in estimates of market shares and concentration that are biased upward.

44. Prof. Harris' economic reasoning for discounting the importance of suppliers that independently own and operate capacity on the same system is unclear. Two firms each owning and independently controlling, say, 50 percent of the capacity of a factory will compete against each other in exactly the same way as if each owned a separate factory with half the

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28. Harris LD affidavit, p. 16.

capacity of the jointly owned facility, assuming there are no economies of scale.[29]

45. Moreover, contrary to Prof. Harris' suggestion, it is even possible that competition among independent owners of capacity provided by the same network could lead to more competition than competition between two geographically separate networks. For example, if two firms own capacity in a network serving highly populated areas, as is the case with Qwest, IXC and Williams, the head to head competition can have significant spillover effects (due in part to required geographic price uniformity) benefiting consumers in areas not served by the shared network. This competition could be more intense than if the two firms each had non-overlapping networks.

46. In addition, share calculations based on route miles fail to capture the differences in the number of fiber strands per cable and the transmission capacity of the electronics used in conjunction with the fiber. While GTE's experts point out that portions of Williams' network include the one fiber strand it retained when WilTel was acquired by WorldCom,[30] it is also important to note that the entrants' networks typically have more fiber strands per cable and more advanced electronics than networks currently deployed by AT&T, MCI, Sprint and WorldCom. Again, this factor greatly complicates the interpretation of calculations of market share and market concentration statistics that ignore these issues.

3. Market shares and pricing

47. Ultimately, the relevance of statistics on market shares and market concentration depends on their predictive power in explaining pricing patterns. The absence of a relationship between changes in market concentration figures and pricing suggests that markets have been misdefined or that factors such as entry constrain pricing (in appropriately defined markets).

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29. With scale economies, it is more efficient to have one factory.

30. Harris LD affidavit, p. 17; Schmalensee/Taylor affidavit, p. 31.

48. GTE's experts present no analysis supporting their claim that changes in market share and concentration such as those resulting from this transaction have any relationship to pricing. Prof. Harris cites data presented by Robert Hall to suggest that historical decreases in retail concentration are related to declining long distance prices (defined as net-of-access cost), which in turn might imply that increases in concentration associated with the merger would result in higher prices.[31] A closer examination of Prof. Harris' Exhibit 27, however, suggests that declines in the HHI in recent years have not been associated with large declines in revenue per minute net of access charge. This in turn implies that changes in the retail HHI associated with this transaction would not be expected to result in significant price increases.

49. Prof. Harris, however, emphasizes that his estimates of (net-of-access cost) prices have not fallen over time. Thus, using Prof. Harris' data, there would be no correlation in prices and the decline in retail concentration in recent years. Ironically, the absence of any relationship between prices calculated by Prof. Harris and the historical decline in industry concentration suggests that the merger would not result in higher prices.

50. The conceptual weaknesses in the market share figures described above, and those acknowledged by GTE's economists, imply that these figures are likely to be unreliable indicators of competitive conditions. Even with properly calculated market shares, the use of HHIs is at best only a first step in any analysis of the competitive consequences of a proposed transaction. Merger analysis needs to address forward-looking considerations, including entry conditions and the growth of industry capacity. As discussed above, GTE's economists have ignored the extensive entry now occurring in the industry and the effect of that entry on consumers.[32]

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31. Harris LD affidavit, p. 29.

32. Moreover, GTE economists ignore the competitive effect of efficiencies realized by the merged firm. To the extent that these efficiencies allow the merged firm to gain share

(continued...)

51. In the absence of estimates of the impact of the relationship between market shares and prices, Prof. Harris presents a calculation of the harm to consumers based on the (arbitrary) assumption of a one cent per minute increase in long distance rates. (See Harris Exhibit 29.) This exercise, however, ignores benefits of lower wholesale and retail pricing made feasible by efficiencies from this transaction and the benefits of greater local exchange competition that are likely to result from the transaction. Since minutes of local telephone use are more than five times as large as minutes of long distance telephone use, a reduction in local rates of less than two-tenths of one cent per minute would more than offset the impact of the hypothetical increase calculated by Prof. Harris. (See Table 4.)

V. THE PROPOSED TRANSACTION WILL NOT SIGNIFICANTLY AFFECT MCI WORLDCOM'S INCENTIVE TO SERVE WHOLESALE CUSTOMERS

52. GTE's economists focus considerable attention on the concern that MCI WorldCom would restrict capacity made available to wholesale customers. They claim that the transaction would fundamentally alter the incentives of WorldCom to supply wholesale capacity to resellers because doing so would risk losing MCI's retail customers to resellers. The analysis and evidence described below suggest that the concerns raised by GTE's economists are greatly exaggerated. This section also addresses GTE's concern that the proposed transaction puts it at risk of competitive harm due to its unique dependence on wholesale services provided by WorldCom.

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from AT&T, the HHI could fall as the result of the transaction.